



Approval # 20040003

Environmental & Regulatory Services Division
Bureau of Petroleum Products and Tanks
201 West Washington Avenue
P.O. Box 7837
Madison, WI 53707-7837

Wisconsin COMM 10 Material Approval

Equipment: *SMARTFLEX*® Nonmetallic Semi-Rigid
Underground Piping and Fittings

Manufacturer: NUPI Americas, Inc
2460 Skyview Circle
Fairfield, CA 94534-8626

Expiration of Approval: December 31, 2009

SCOPE OF EVALUATION

The *SMARTFLEX* lined underground piping system as manufactured by NUPI S.p.A., Imola, Italy (d.b.a.: NUPI Americas, Inc.), was evaluated for use as petroleum product piping for underground storage tank systems in accordance with **Comm 10.51 (2)**, of the Wisconsin Administrative Flammable and Combustible Liquids Code.

This evaluation summary is condensed to provide the specific installation, application and operation parameters necessary to maintain the subject systems in compliance with the Wisconsin Administrative Code – Comm 10.

DESCRIPTION AND USE

The NUPI - *SMARTFLEX* semi-rigid pipe system consists of a high-density polyethylene (HDPE) pipe with an internal barrier lining, which reduces hydrocarbon permeation through the pipe system. The pipes and fittings are connected by electro-fusion welded joints and are available in the following sizes:

Primary Pipe Diameters

1"	T SMA32
1-1/2"	T SMA50
2"	T SMA63
3"	T SMA90
4"	T SMA110

Secondary Pipe Diameters

1" x 1-1/4"	T SMAD32
1-1/2" x 2"	T SMAD50
2" x 2-1/2"	T SMAD63
3" x 6"	T SMA90/T SMAS160
4" x 8"	T SMA110/T SMAS180

TESTS AND RESULTS

SMARTFLEX semi-rigid pipe and fittings were found to comply with the current Underwriters Laboratories' requirements (Standard 971) for this class of piping and are suitable for use in the distribution of petroleum products, alcohol, and alcohol-gasoline mixtures.

LIMITATIONS / CONDITIONS OF APPROVAL

- *SMARTFLEX* semi-rigid pipe and fittings are approved as meeting the design and construction standards for underground piping as specified in **s. Comm 10.51 (2)** up to 116 psig and 58 psig for secondary containment and up to full vacuum for both primary and secondary containment systems.
- *SMARTFLEX* semi-rigid pipe and fittings can be used as carrier, vent, and vapor recovery piping.
- Critical performance parameters for the *SMARTFLEX* semi-rigid pipe and fittings:

Primary Pipe

<i>SMARTFLEX</i> Pipe Size (in.)	Minimum Bend Radius (in.)	Bulk Modulus (psi)
1	22.7	12,300
1 ½	35.4	12,300
2	44.6	12,300
3	63.8	12,300
4	78	12,300

Secondary Containment Piping

<i>SMARTFLEX</i> Pipe Size (in.)	Minimum Bend Radius (in.)	Bulk Modulus (psi) ¹
1 1/4	28.3	6,200
2	44.6	6,200
2 1/2	52.7	6,200
6	N/A	6,200
8	N/A	6,200

¹: For secondary containment only; a bulk modulus value is not necessary for this application.

- *SMARTFLEX* piping is approved for installation without the flex connectors specified in **s. Comm 10.51 (3)**.
- *SMARTFLEX* semi-rigid pipe and fittings are approved for underground (buried) installations only.
- *SMARTFLEX* secondary containment fittings that **DO NOT** have an interstitial space around the entire circumference of the primary piping must be placed within a containment sump.
- The *SMARTFLEX* secondary containment piping and fittings are approved for use as a secondary barrier for interstitial monitoring systems in compliance with **s. Comm 10.61 (7)**.
- Installation, use and maintenance of all products shall be in accordance with the manufacturer's recommendations and this approval. In the event of conflicts, the stricter requirement shall govern.
- Leak detection for the piping system shall be provided in accordance with **s. Comm 10.60 (2)**. The specific leak detection system must be shown on the plans that are submitted for review in accordance with **s. Comm 10.10**. Automatic line leak detectors and line tightness testing methods must be specifically approved for use with semi-rigid piping in accordance with **s. Comm 10.125**. (Note: Evaluation of these leak detection methods with the standard EPA protocol does not demonstrate acceptability for use with semi-rigid piping.)

This approval will be valid through December 31, 2009, unless manufacturing modifications are made to the product or a re-examination is deemed necessary by the department. The Wisconsin Material Approval Number must be provided when plans that include this product are submitted for review.

DISCLAIMER

The Department is in no way endorsing or advertising this product. This approval addresses only the specified applications for the product and does not waive any code requirement unless specified in this document.

Reviewed by: _____

Greg Bareta, P. E.
Engineering Consultant
Bureau of Petroleum Products and Tanks

Approved by: _____

Date: **April 6, 2004** _____